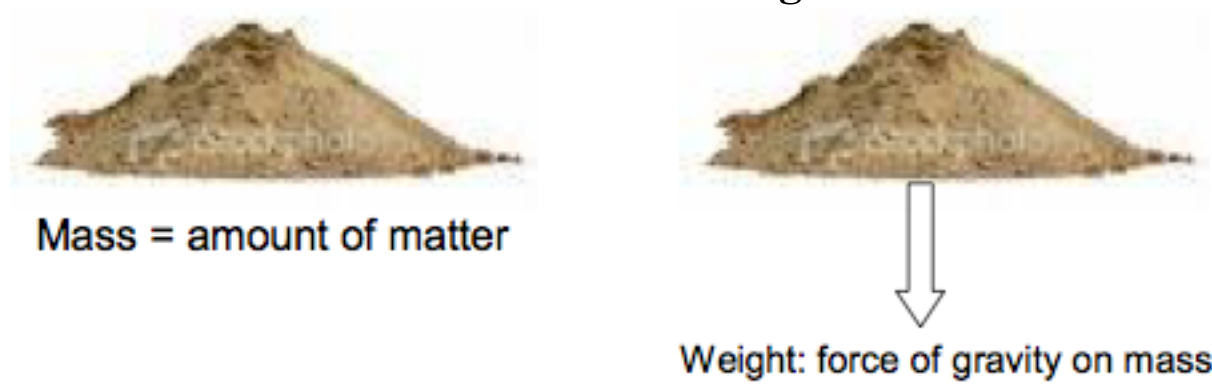


Name: _____

Per: _____

Forces & Motion WS 4 “Weight vs. Mass”



1. Answer the following questions, using either *mass* or *weight*.

- The amount of matter in an object is called its _____.
- The force of gravity on an object is called its _____.
- If you take a spaceship into space, your _____ stays the same.
- If you take a spaceship into space, your _____ changes.
- The force of gravity is bigger when one object has a much larger _____ than the other.
- If you double the mass of an object, you double the object's _____.
- On Earth you can compare the masses of different objects by comparing their _____.
- _____ is measured in grams or kilograms.
- _____ is measured in Newtons.

2. If you drop a 50 cent piece (half-dollar) and a 10 cent piece (a dime) from a tall building...

- Do the objects have the same mass? _____
- Do the objects have the same gravitational force? _____
- Will both coins hit the ground at the same time? _____



3. Explain what is constant for both objects based on your answer to c.

Name: _____

Per: _____

4. Determine the weight of the following masses

a. A car that is 2000 kg

b. A ball that is 0.5 kg

c. A 14 – year – old boy that is 75 kg

d. A book that is 2.5 kg

5. Determine the masses of the following objects.

a. A boat that is 68,000 N

b. A baseball bat that is 98 N

c. A dog that is 350 N

d. A golf ball that is 0.45 N

6. Find the weight of objects a – c from question 4 if they were on the moon. The gravitational acceleration experienced on the moon is 1.6 m/s^2 .

a)

b)

c)

7. A spaceship has a mass of 9000 kg. The space ship is launched from Earth and lands on a distant planet where it has a weight of 390000 N. What is the acceleration of gravity on this planet?

GIVEN VARIABLES	EQUATION	WORK / PICTURE	ANSWER

8. The elevator in the new office building warns that it can safely lift 300 kg at one time. If John (850 N), Betty (530 N), Robert (740 N) and Alice (610 N) all get in the elevator at once, can the elevator safely carry them up to the third floor? Think! Show all work.